# Teacher Think Tank

## February 25, 2012 • Grinnell College
## 10AM – 2PM

Attendees

Laura Albrecht, 8th Grade Science and Social Studies – Johnston Middle School, Johnston

Dominic Audia, Science and PLTW – West High School, Iowa City

Jonnie Becker, Science – North Butler High School, Greene

Roger Blickenderfer, Mathematics – Central Springs High School, Manly

Thomas Boheman, Science – Gladbrook-Reinbeck, Reinbeck

Kacia Cain, Biotechnology/Anatomy and Physiology – Central Campus, Des Moines

Lisa Chizek, 5th and 6th Grade Science – North Tama Elementary School, Traer

Christopher Creason, Science (*retired)* – Perry High School, Perry

Deb Dunkhase, Executive Director – The Iowa Children's Museum, Coralville

Craig Edmondson, Science Curriculum Consultant – Heartland Area Education Agency, Johnston

Jennifer Eppert, Career Opportunities in Health – Central Campus, Des Moines

Kathryn Geers, Mathematics – Alburnett High School, Alburnett

Jessica Gogerty, School Improvement Leader – North High School, Des Moines

Johsua Hanna, Science and Educational Technology – Malcolm Price Laboratory School, Cedar Falls

Holly Hinkhouse, Science – Riverside High School, Carson

Sue Meggers, 7th and 8th Grade Science – Interstate 35 Secondary School, Truro

Matthew Miller, Mathematics – Washington High School, Cedar Rapids

Phoebe Pittman, 8th Grade Science – Charles City Middle School, Charles City

Terry Schneekloth, Mathematics – Jefferson High School, Cedar Rapids

Jay Staker, Program Director – Science, Engineering and Technology Extension at Iowa State University and Associate Director of Education for the Iowa Space Grant Consortium

Richard Strike, Mathematics (Department Chair) – Cedar Falls High School, Cedar Falls

Lesley Taylorson, 7th Grade Science – Hoover Middle School, Waterloo

Gale Vermeulen, Science – Oskaloosa High School, Oskaloosa

Mike Wedge, Science – Shibley-Ocheyedan High School, Sibley

Andrew Wermes, Education Consultant for Skilled and Technical Sciences, Project Lead The Way (PLTW) State Leader, Coordinator of the Iowa MSHA State Grant – Iowa Department of Education

Sarah Wilson, Mathematics – Muscatine High School, Muscatine

Kari Jastorff and Jeff Weld, IMSEP

## Event Summary

Approximately 200 minutes of dialogue around the 7 Priorities of the STEM Council (plus the Scale-up of Interest/Achievement programs) yielded enormous raw data to shape the plans of the Governor's STEM Advisory Council. Some of Iowa's top teachers of math and science attended the meeting. The group unanimously agreed to continue to serve the Council as a sounding board body now known as the STEM $T^3$ (Teacher Think Tank). As plans evolve, we hope to lean on this body of professionals for advice and input. Below are the major themes brought out on the day.

# Major Themes

1. **Post-Secondary Readiness** *(ideas were embedded into technology, teacher prep, policy, publicity, etc.)*

2. **STEM Teacher Preparation and Recruitment**

- New STEM teachers can feel isolated – create a system of connection – an on-line STEM teacher community.
- New teachers are underprepared with technology. Teacher preparation programs are not preparing them.
- Cooperating (field placement) teachers should be carefully selected so that our new teachers are working under the best examples possible (Master teachers).
- Significant credit (renewal credits, grad credits, pay) should be provided to master teachers who mentor student teachers or new teachers. It is a professional consult.
- Iowa's excellent STEM teachers need to be held up as examples.
- Build in time for STEM teachers to work within and across grade levels to coordinate quality STEM.
- The people who train our teachers at the college level also need professional development so that they are preparing new teachers in cutting-edge ways.
- Aid to the elementary teacher who wants to do science and math but may not be comfortable with it—perhaps a corp of retired STEM teachers could be enlisted. And/or, secondary students and teachers should be facilitated in working with elementary.
- We need to educate our school administrators (Principals, Superintendents) about what good STEM teaching should look like so that they know what to encourage and how to encourage it.
- Relatedly, evaluating teachers of STEM calls for evaluators who know good modern STEM teaching techniques. Can school leaders be developed to know good teaching of STEM or should we think of some sort of "outsider" evaluators on a reciprocal basis?—K-12 teachers evaluated by post-secondary professionals and post-secondary evaluated by K-12 could be a model.
- We should uncouple educational administration with educational evaluation so that it can be immersive and meaningful.

- Consider “STEM Methods” instead of layered science and methods separately – that does not promote interdisciplinary teaching and learning. Maybe a STEM endorsement.

- Consider the teaching/development of Project Management Skills for teachers of STEM since so much of what is considered best-practice is project-driven.

- Take teacher training to actual schools much like Med school happens within hospitals.

**3. STEM Public Awareness.**

- Make a repository of excellent video snapshots of outstanding Iowa teachers teaching STEM… a YouSTEM sharing site.

- Relatedly, keep a database of excellent programs and teachers for highlighting and for media contacts.

- Enlist the help of the media in portraying good STEM teaching in their “feel good” vignettes. We may need to do a bit of PD for media channels so they know what to look for.

- Educate parents, school board members, trade associations, business about what to look for in a local classroom that is STEM excellence. Then encourage them to celebrate it when they find it.

- Use TIM. The Technology Integration Matrix (TIM) is a matrix of different levels of integrated technology through different kinds of classroom learning environments. A showcase of good examples there and at the Teaching Channel.

- Enlist the private sector to help produce videos. They can advertise on it.

- Don’t forget to model the Technology and Engineering components of STEM. Help teachers feel like they can do it. They may already be doing it. They just don’t realize it or do not have it “labeled” as such.

- In PR messaging about STEM, be clear that it’s for everyone, not just four-year bound but that also many trades and crafts require STEM too.

**4. Technology-Enhanced STEM**

- Be sure to integrate existing ITEA/AETL standards into STEM plans.

- Help Iowa level the technology disparity (and not by bringing the “haves” down)

- Be clear about “educational technology” and “technology for education.”

- Build apprenticeships, job shadows, co-ops, internships for students in business. This will require an intermediary making the connections in many communities.

**5. Iowa STEM Policy**

- Competency-Based Education will require community engagement and public awareness/support because it is a new game to many adults, especially considering grades and testing culture.

- Don't let our metrics or indicators become our goals (e.g., test averages).

**6. Public-Private Partnerships for STEM**

- Business Bridge Building Hotline needed so that teachers can make quick, relevant connections to business.

- There needs to be a bit of professional development for the business sector so they better understand school limitations, constraints, opportunities. Encourage school-business councils for each district.

**7. STEM for All – the highly abled, the under-represented and the nontraditional**

- Avoid hard and fast rules such as 15% New Teacher Hires with a Master's Degree. In rural schools that can be a hardship. Instead consider training, voluntary professional development, endorsements, track record.

- STEM For All should really be re-named STEM for certain groups. Some subpopulations are so disadvantaged and have been lagging for so long that if we don't address those needs we cannot bring everyone else up.